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Trends and approaches in N-Glycosylation engineering in Chinese hamster ovary cell culture

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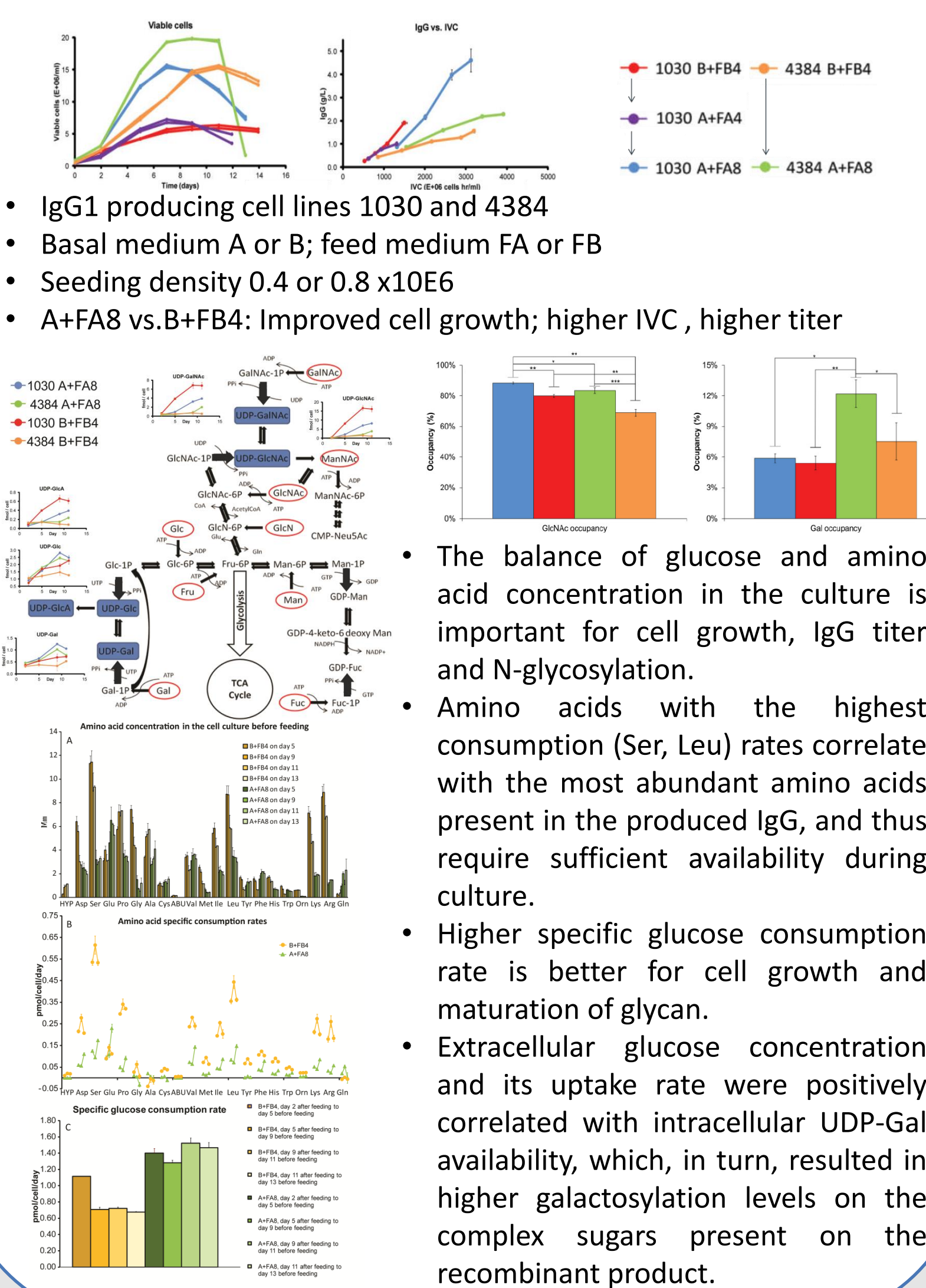
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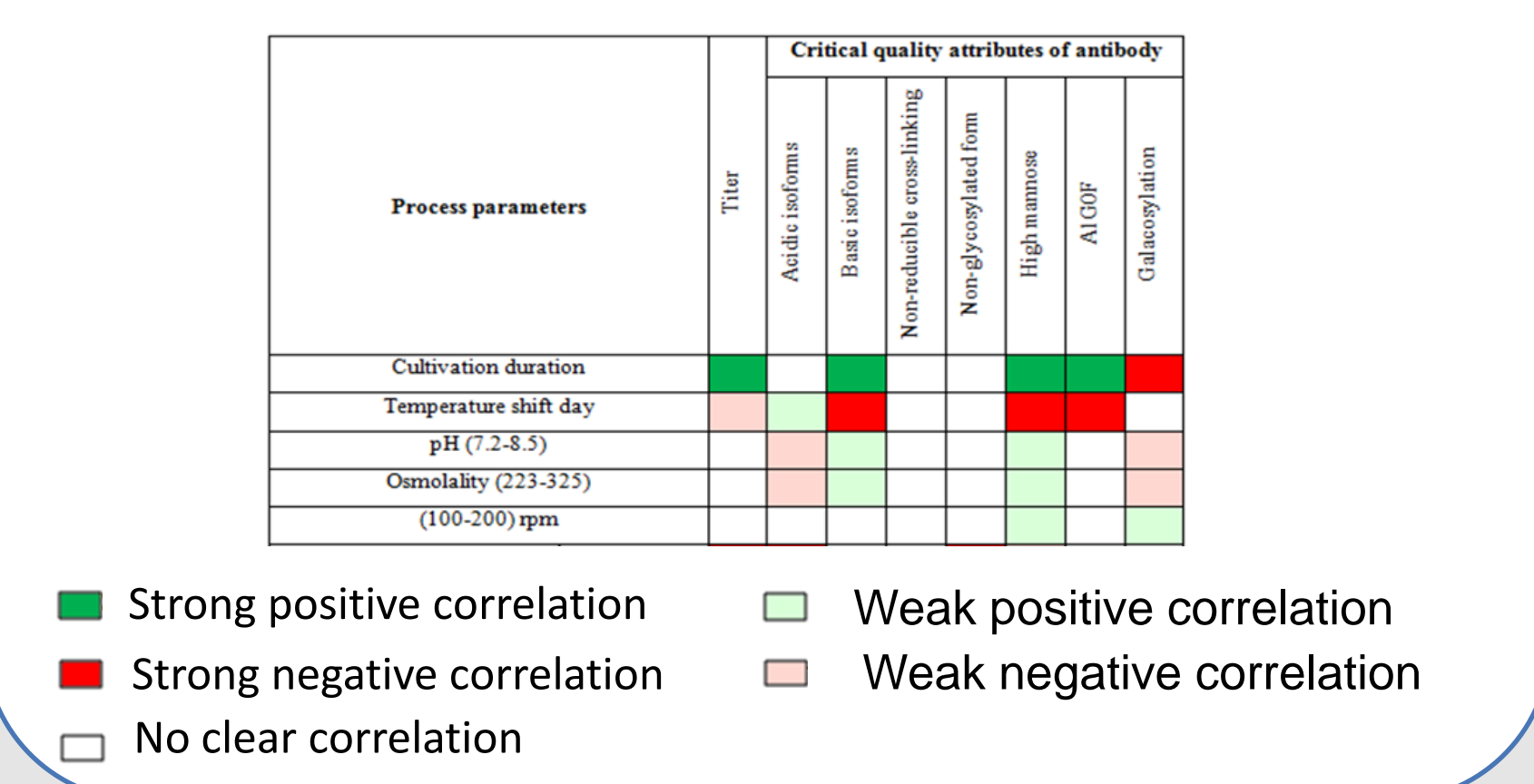
Summary

Chinese hamster ovary (CHO) cells have become the preferred expression system for the production of complex recombinant glycoproteins. It has been historically successful in industrial scale-up application and in generating human-like protein glycosylation. N-glycosylation of recombinant proteins, in particular, of those as drug substances, is extremely concerned in drug development and approval, as it will largely affect their stability, efficacy, clearance rate and immunogenicity. Therefore to engineering N-glycosylation of CHO cell-derived recombinant proteins are extremely important. Here, we will summarize a group of recent strategies and approaches and come up with case studies for N-glycosylation engineering in CHO cells and show several examples of relevant study cases from our research: 1) media and feed design, 2) culture process optimization, 3) substrate addition, 4) genetic engineering, 5) omics-based characterization, 6) mathematical modelling.

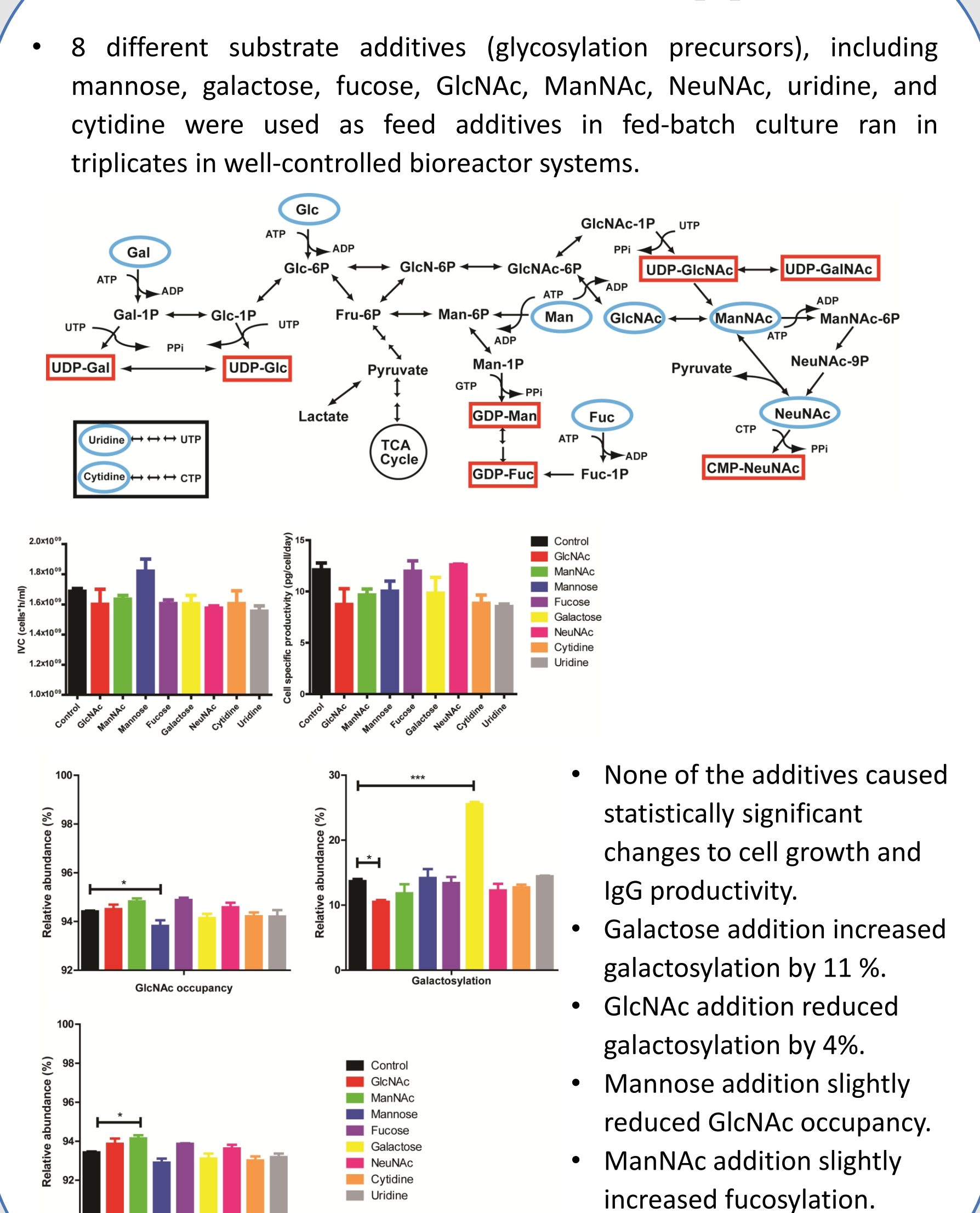
1. Medium and feed design [1]



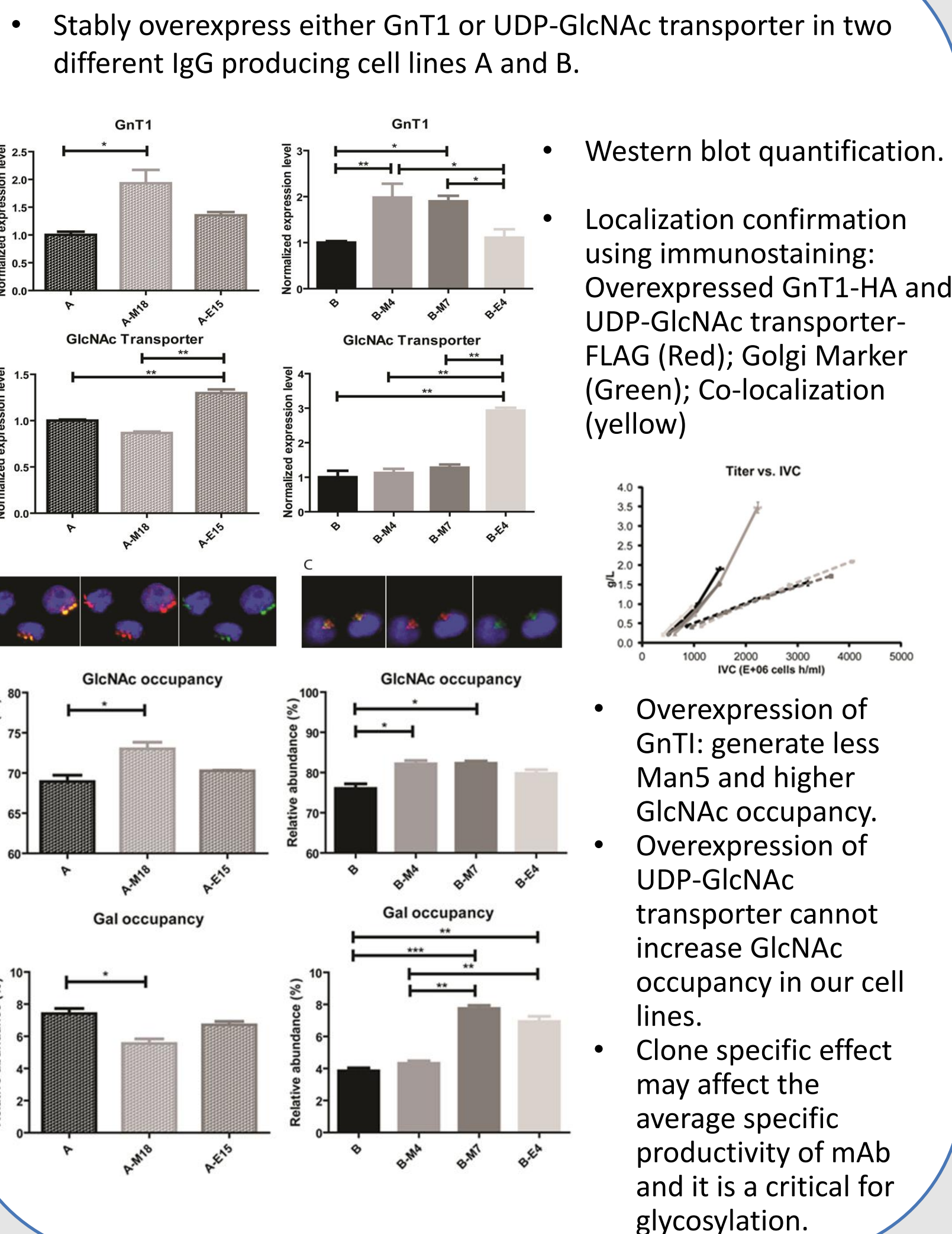
2. Culture process optimization



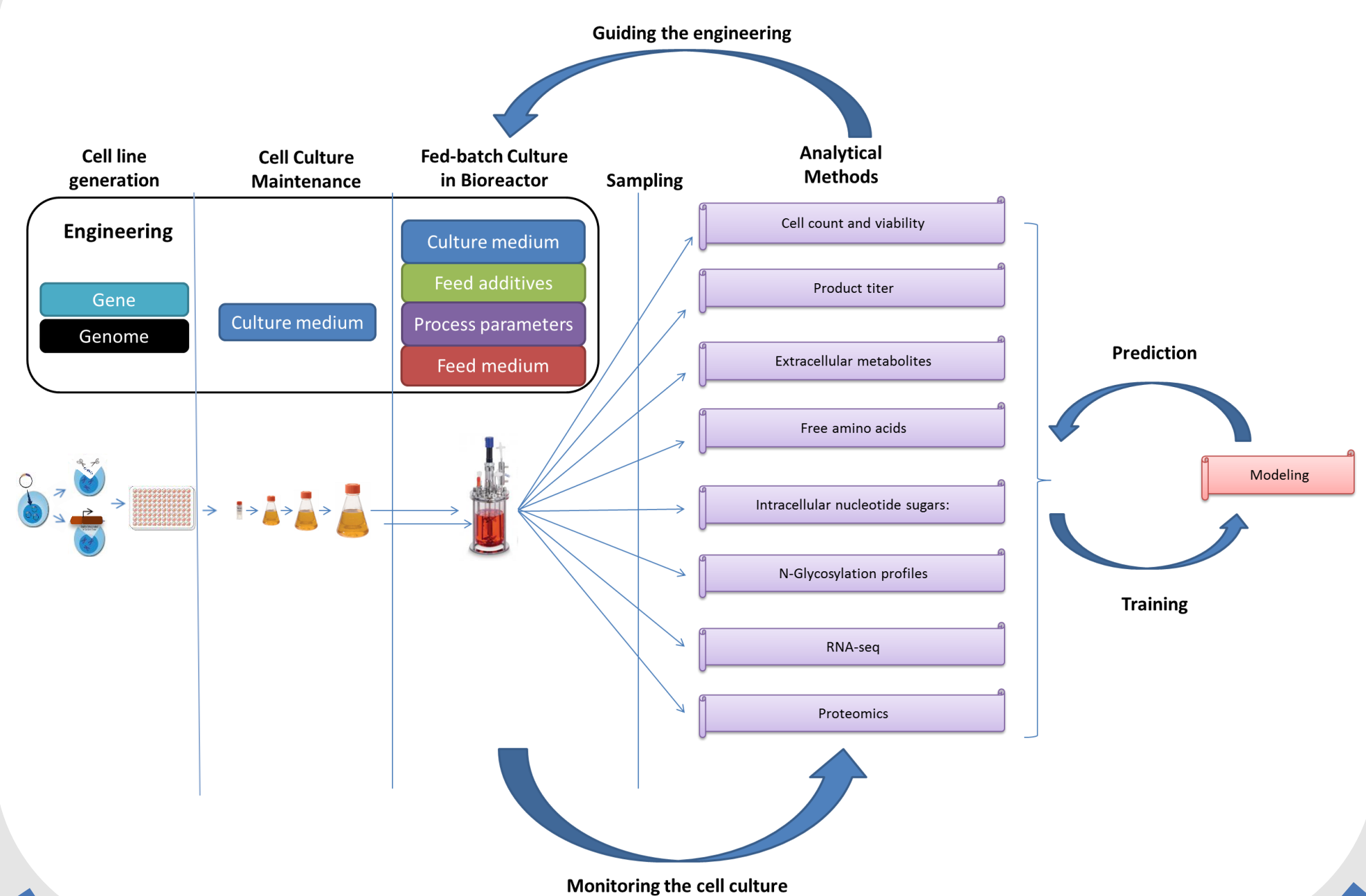
3. Substrate addition [2]



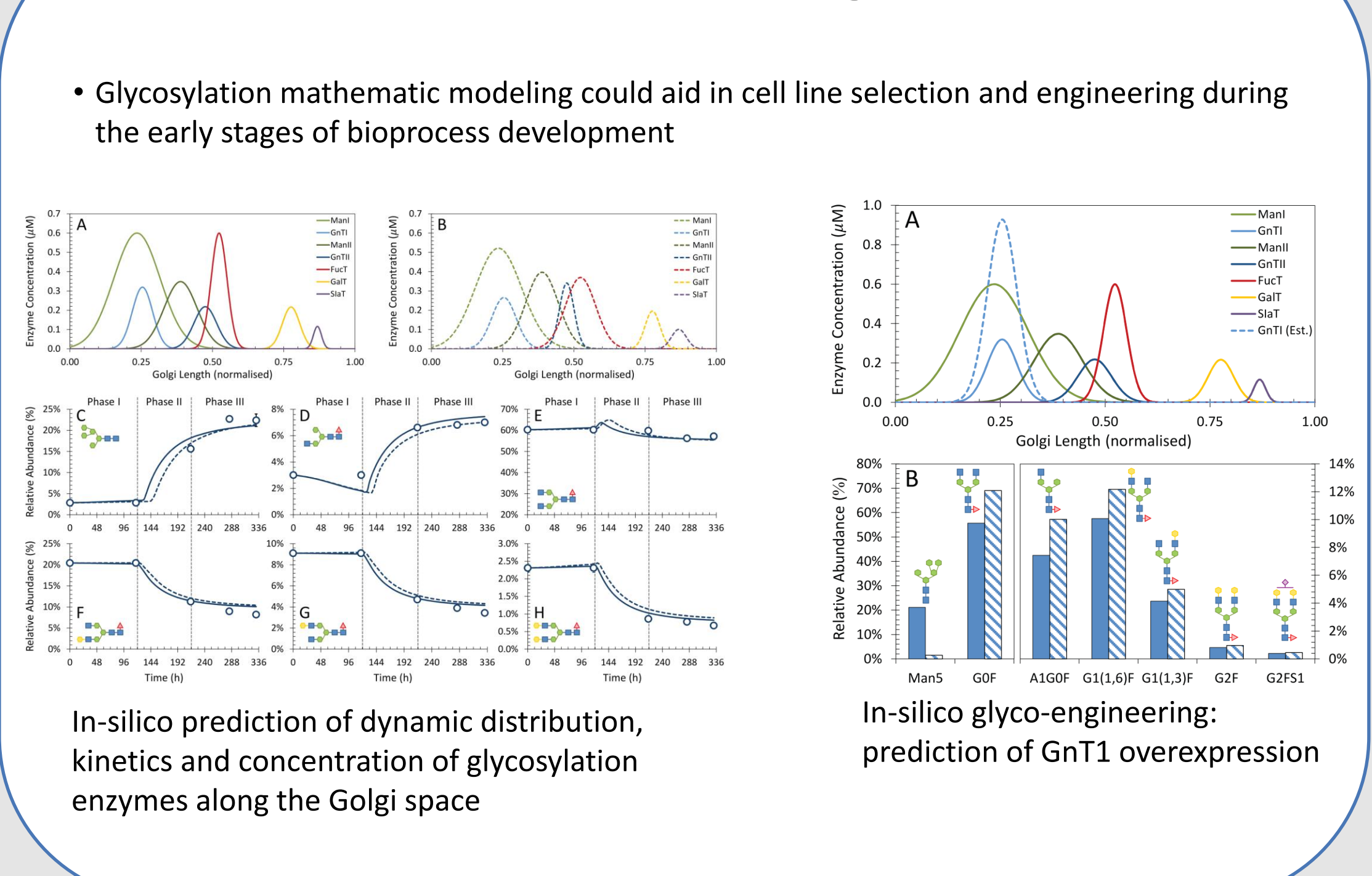
4. Genetic engineering



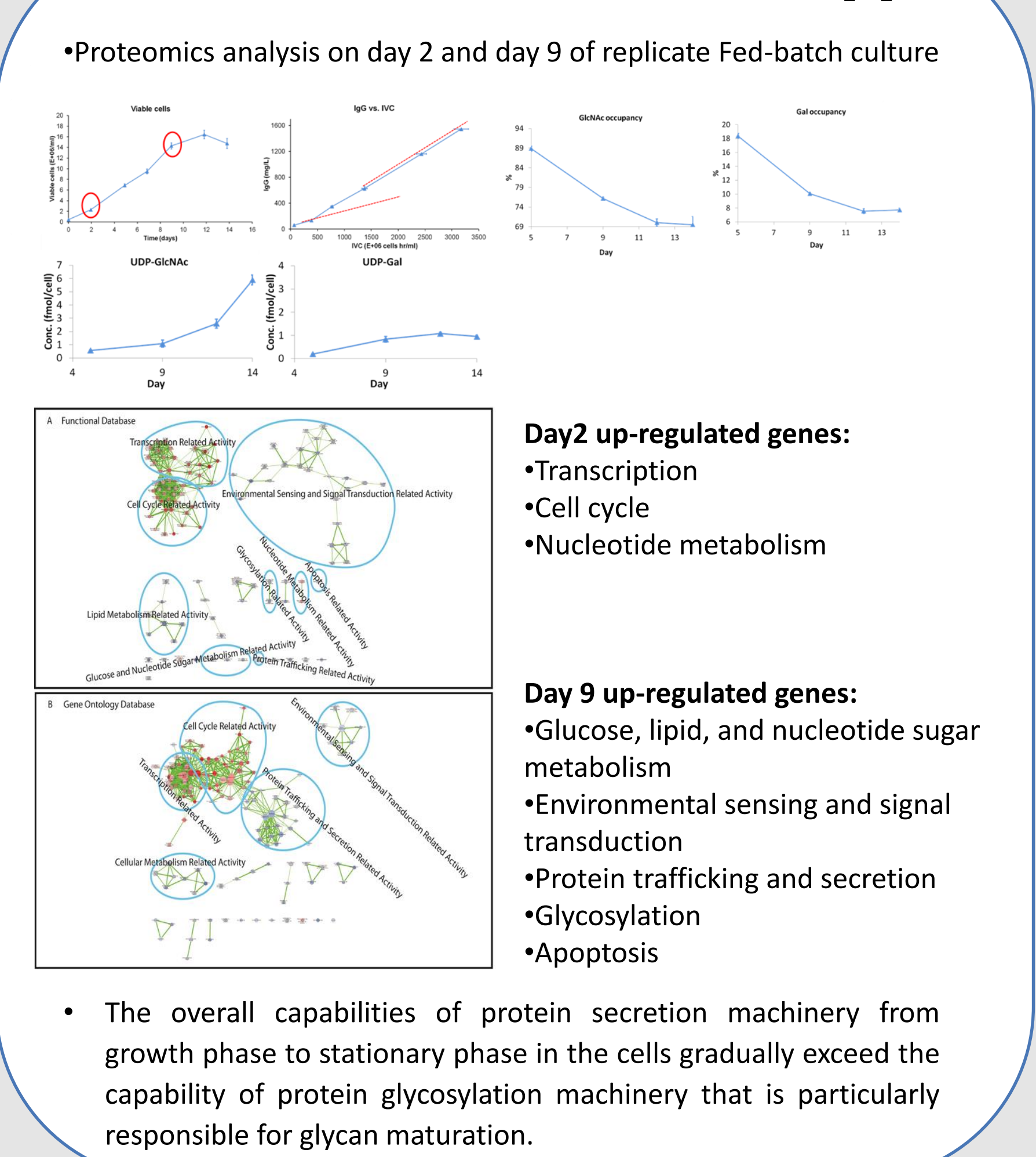
Work flow in N-glycosylation engineering



6. Mathematical modelling [4]



5. Omics-based characterization [3]



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